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| 10/584,394 | 05/24/2007 | Yousuke Ishida | 90606.738/ku | 9001 |
| 54071 | 7590 | 01/29/2010 | | |
| YAMAHA C/O KEATING & BENNETT, LLP 1800 Alexander Bell Drive SUITE 200 Reston, VA 20191 | | | EXAMINER LIU, HENRY Y | |
| | | | ART UNIT 3654 | PAPER NUMBER |
| | | | NOTIFICATION DATE 01/29/2010 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/584,394 | Applicant(s) ISHIDA, YOUSUKE | |
| | Examiner HENRY LIU | Art Unit 3654 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/4/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8-11 and 13-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 8, 10, 11, 16, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 3, 9, 13, 14, 15, 18, 19, 21, 22, and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/23/2006, 7/11/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is the first action on the merits for application 10/584394. **Claims 1-4, 8-11, and 13-25** are pending, of which **Claims 1, 8, 13, 16, 20, and 23** are in independent form.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

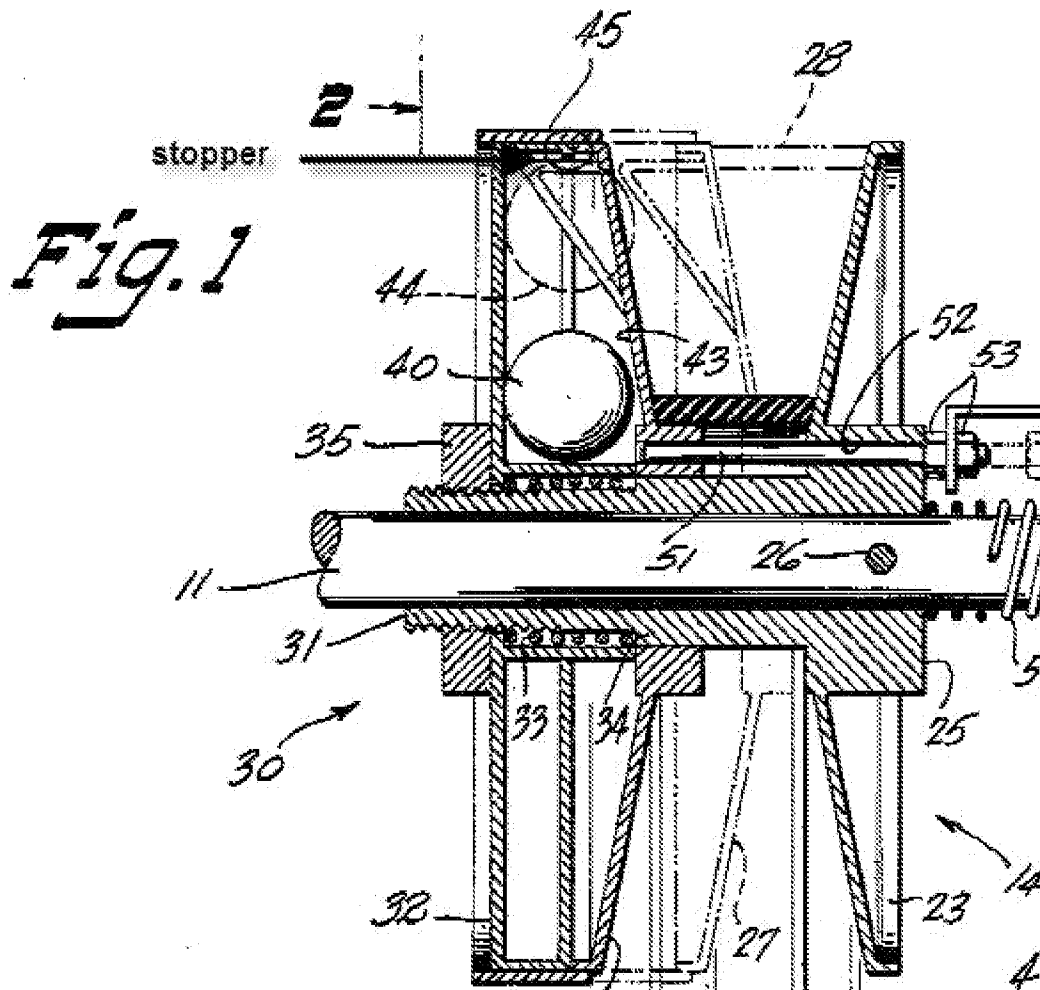
Claims 1, 2, 4, 8, 10, 11, 16, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by HOMUTH (2,715,842).

Regarding Claim 1, HOMUTH teaches “A belt type continuous variable transmission (Fig. 1) comprising a primary sheave (14) that outputs torque, a secondary sheave (13) that receives torque from the primary sheave, and a belt (15) entrained between the primary sheave and the secondary sheave in an endless manner to

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transmit torque to the secondary sheave from the primary sheave (Fig. 1), and wherein the primary sheave comprises a first sheave body (23), a second sheave body (24) provided to be relatively slidable in a direction toward and away from the first sheave body and forming between it and the first sheave body a belt groove, about which the belt is entrained (Fig. 1), a plurality of push bodies (44) (Fig. 2) that rotate together with the second sheave body (24) and move radially of the second sheave body (24) according to centrifugal forces generated at the time of rotation of the second sheave body (Fig. 1), such movements causing the second sheave body (24) to slide to change a width of the belt groove, and a plurality of stoppers that restrict movements of the push bodies by contacting with outer surfaces of the push bodies when the second sheave body reaches a position of minimum transmission gear ratio.” See figure below. A plurality of arc sections restricts the push bodies (Fig. 2). The arc sections correspond to “a plurality of stoppers.”

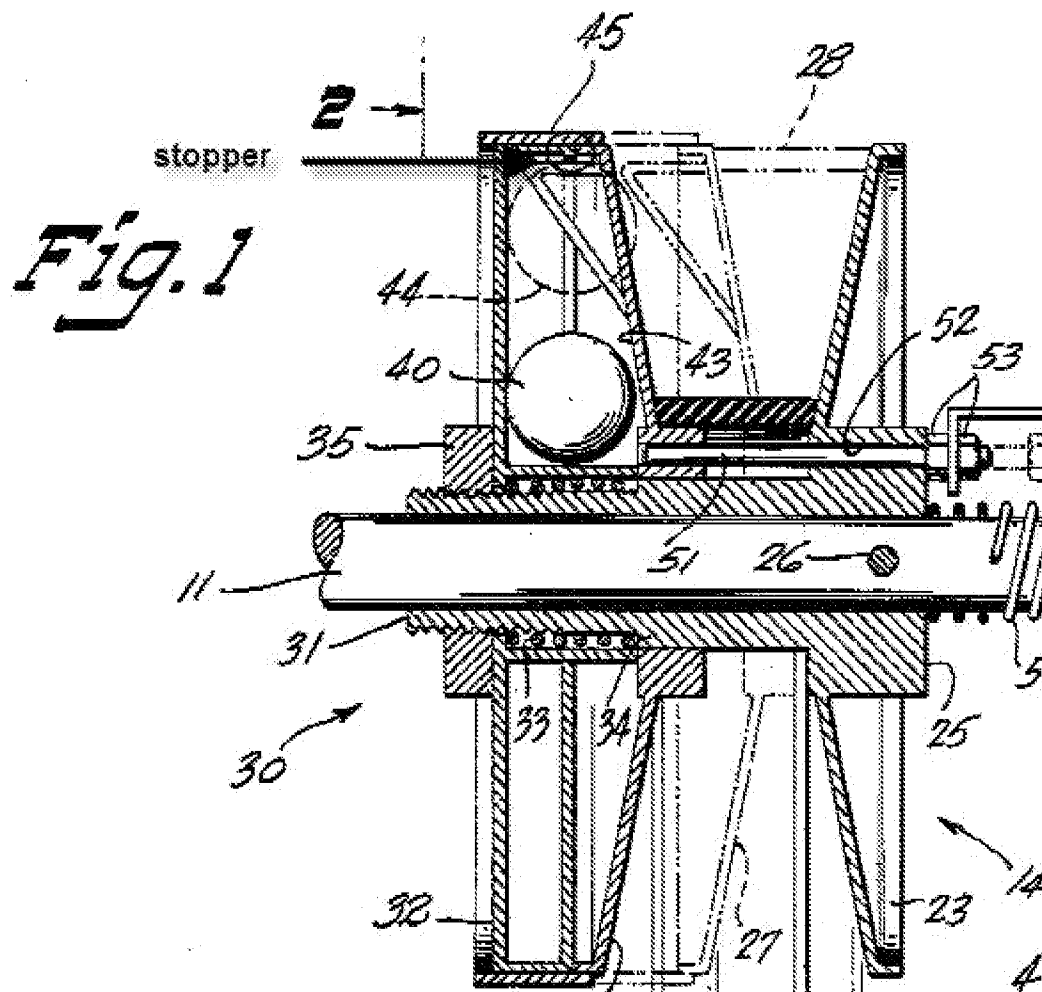
HOMUTH teaches “in which the belt groove is made smallest in width, the stoppers being shaped to accelerate partial wear of the outer surfaces of the push bodies.” The shape shown inherently accelerates wear since it is the same shape as applicant’s stopper in Fig. 8.



Regarding Claim 2, HOMUTH teaches “wherein the stoppers are formed on the second sheave body (Fig. 1).”

Regarding Claims 4 and 24, HOMUTH teaches “wherein the respective stoppers comprise a stopper surface opposed to an outer surface of the push body and at least one projection projecting from the stopper surface.” See figure above.

Regarding Claim 8, HOMUTH teaches "A belt type continuous variable transmission comprising a primary sheave (14) that outputs a torque, a secondary sheave (13) that receives torque from the primary sheave (14) and a belt (15) entrained between the primary sheave (14) and the secondary sheave (13) in an endless manner to transmit torque to the secondary sheave (13) from the primary sheave (14), and wherein the primary sheave (14) comprises a first sheave body (23), a second sheave body (24) provided to be relatively slidable in a direction toward and away from the first sheave body (23) and forming between it and the first sheave body a belt groove (Fig. 1), about which the belt (15) is entrained, a plurality of push bodies (44) that rotate together with the second sheave body (24) and move radially of the second sheave body (24) according to centrifugal forces generated at the time of rotation of the second sheave body, such movements causing the second sheave body (24) to slide to change a diameter, at which the belt (15) is entrained about the primary sheave (14), and a plurality of stoppers that restrict movements of the push bodies by contacting with outer surfaces of the push bodies when the second sheave body reaches a position of minimum transmission gear ratio, in which a diameter, at which the belt is entrained, is made largest, the stoppers comprising at least one projection projecting toward the outer surface of the push body (Fig. 1)." See figure below. A plurality of arc sections restricts the push bodies (Fig. 2). The arc sections correspond to "a plurality of stoppers."



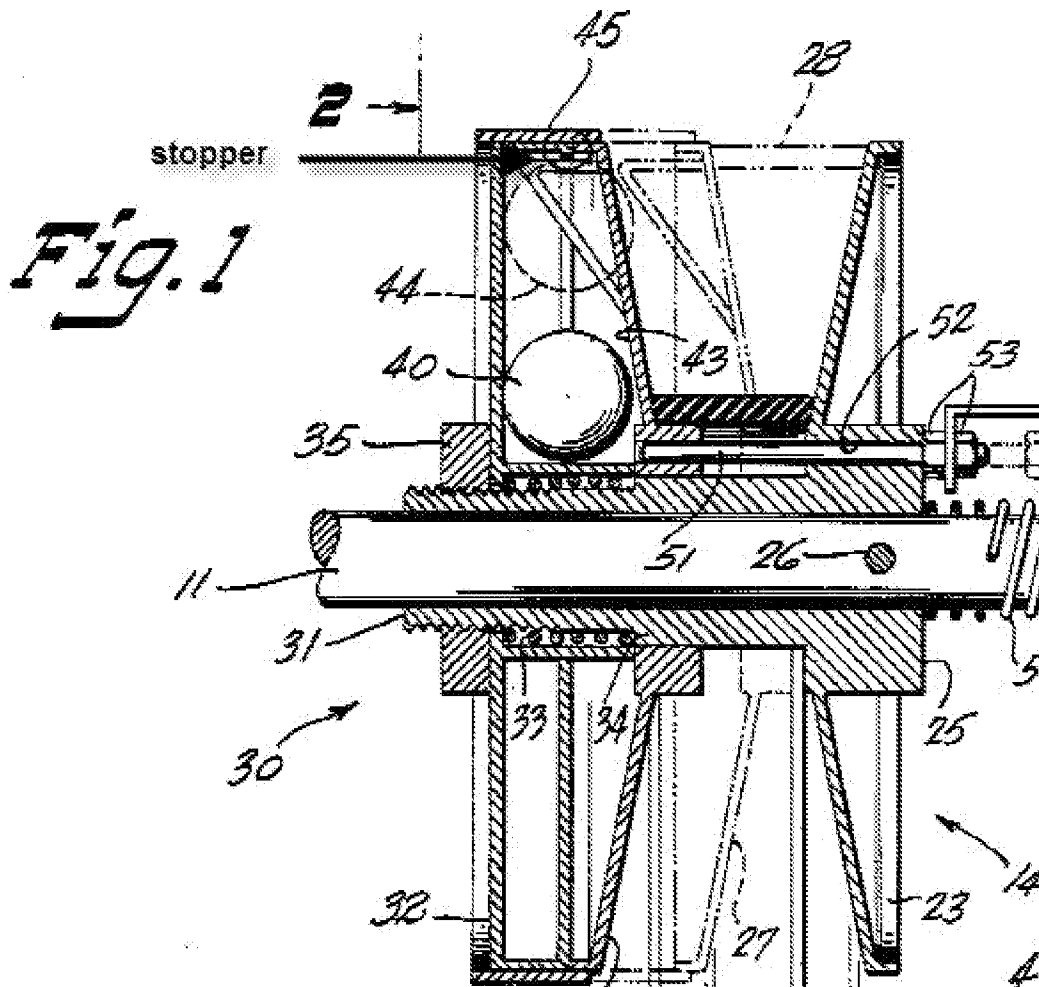
Regarding Claim 10, HOMUTH teaches “wherein the second sheave body comprises a plurality of cam surfaces (43), with which the push bodies (44) contact, and the stoppers are positioned at ends of the cam surfaces (43) (Fig. 1).”

Regarding Claim 11, HOMUTH teaches "wherein the primary sheave comprises a cam plate (32) opposed to the cam surfaces (43) of the second sheave body (24) and rotating together with the second sheave body (24), and the push bodies are interposed between the cam surfaces and the cam plate and contact with the stoppers and the cam plate when the second sheave body reaches a position of minimum transmission gear ratio (Fig. 1)."

Regarding Claim 16, HOMUTH teaches "A power unit comprising a drive source (Col. 2 lines 7-32) and a belt type continuous variable transmission interlocking with the drive source, the belt type continuous variable transmission comprising a primary sheave (14) that outputs torque, a secondary sheave (13) that receives torque from the primary sheave (14), and a belt (15) entrained between the primary sheave and the secondary sheave in an endless manner to transmit torque of the primary sheave to the secondary sheave, and wherein the primary sheave comprises a first sheave body (23), a second sheave body (24) provided to be relatively slidable in a direction toward and away from the first sheave body (23) and forming between it and the first sheave body a belt groove, about which the belt is entrained, a plurality of push bodies (44) that rotate together with the second sheave body (24) and move radially of the second sheave body according to centrifugal forces generated at the time of rotation of the second sheave body (24), such movements causing the second sheave body (24) to slide to change a width of the belt groove, and a plurality of stoppers that restrict movements of the push bodies by contacting with outer surfaces of the push bodies when the second

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sheave body reaches a position of minimum transmission gear ratio, in which the belt groove is made smallest in width, the stoppers being shaped to accelerate partial wear of the outer surfaces of the push bodies." See figure below. A plurality of arc sections restricts the push bodies (Fig. 2). The arc sections correspond to "a plurality of stoppers." The shape shown inherently accelerates wear since it is the same shape as applicant's stopper in Fig. 8.



Regarding Claim 23, HOMUTH teaches “A belt type continuous variable transmission (Fig. 1) a first sheave body (23), a second sheave body (24) that forms between it and the first sheave body a belt groove, about which the belt is entrained (Fig. 1), the second sheave body (24) being enabled by a push body (44), which moves radially of the second sheave body (24) according to centrifugal forces generated at the time of rotation of the second sheave body (Fig. 1), to relatively slide in a direction toward and away from the first sheave body (23), and comprising a stopper that restricts movements of the push body by contacting with an outer surface of the push body when slid to a position of minimum transmission gear ratio, in which the belt groove is made smallest in width, the stopper being shaped to accelerate partial wear of the outer surface of the push body (Fig. 1).” The shape shown inherently accelerates wear since it is the same shape as applicant’s stopper in Fig. 8.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over HOMUTH (2,715,842) in view of OETTING (4,499,965).

Regarding Claim 17, HOMUTH teaches all the elements of Claim 17 except “wherein the drive source comprises an engine having a crank shaft and the primary sheave receives torque from the crank shaft to be rotated.”

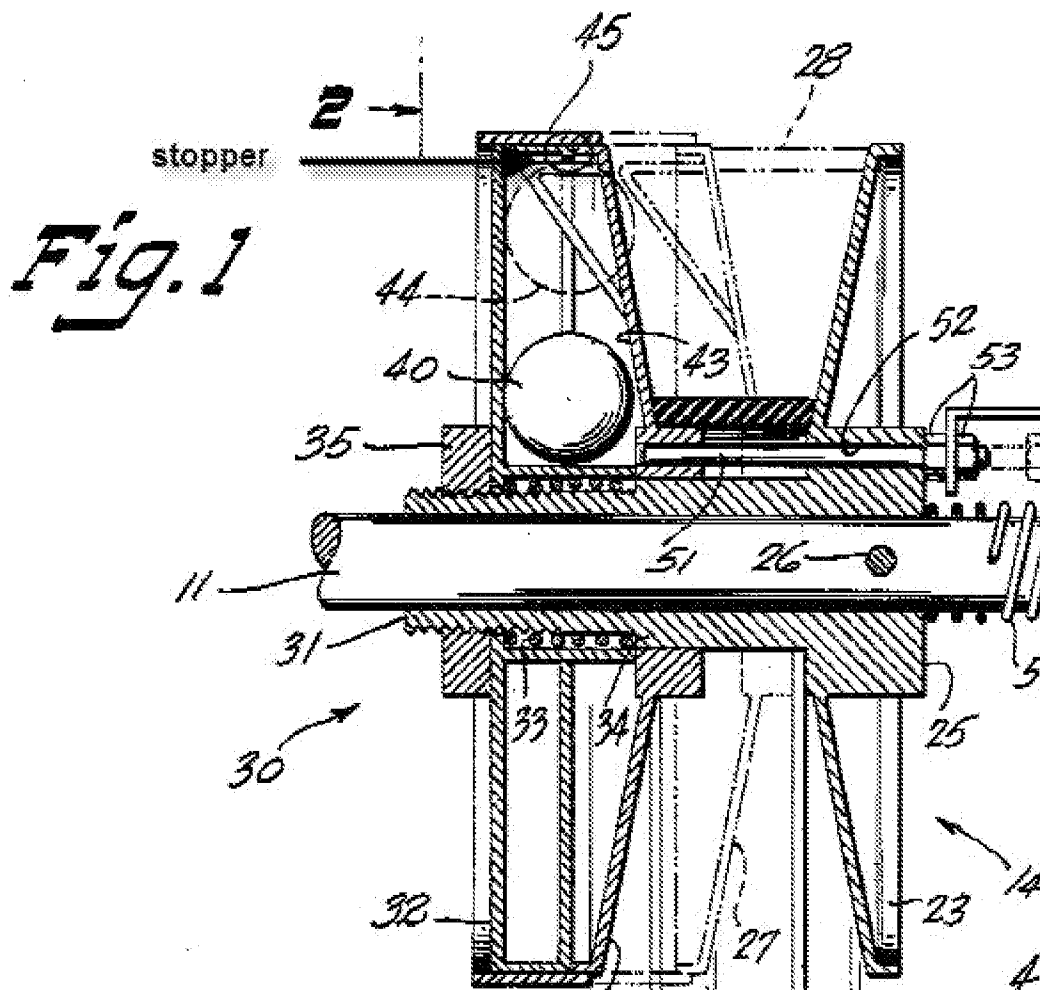
OETTING teaches a crankshaft in an engine (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the drive source in HOMUTH with the crankshaft in OETTING to supply rotational power to the transmission.

Regarding Claim 20, HOMUTH teaches “and a belt type continuous variable transmission interlocking with the drive source, the belt type continuous variable transmission comprising a primary sheave (14) that outputs torque, a secondary sheave (13) that receives torque from the primary sheave (14), and a belt (15) entrained between the primary sheave and the secondary sheave in an endless manner to transmit torque of the primary sheave to the secondary sheave, and wherein the primary sheave comprises a first sheave body (23), a second sheave body (24) provided to be relatively slidable in a direction toward and away from the first sheave body (23) and forming between it and the first sheave body a belt groove, about which the belt is entrained, a plurality of push bodies (44) that rotate together with the second

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sheave body (24) and move radially of the second sheave body according to centrifugal forces generated at the time of rotation of the second sheave body (24), such movements causing the second sheave body (24) to slide to change a width of the belt groove, and a plurality of stoppers that restrict movements of the push bodies by contacting with outer surfaces of the push bodies when the second sheave body reaches a position of minimum transmission gear ratio, in which the belt groove is made smallest in width, the stoppers being shaped to accelerate partial wear of the outer surfaces of the push bodies.” See figure below. A plurality of arc sections restricts the push bodies (Fig. 2). The arc sections correspond to “a plurality of stoppers.” The shape shown inherently accelerates wear since it is the same shape as applicant’s stopper in Fig. 8.



HOMUTH does not teach a "vehicle comprising a frame, a drive source supported on the frame."

OETTING teaches a vehicle comprising a frame (Col. 1 lines 5-65). A drive source is inherently supported on a frame of some sort.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the drive source in HOMUTH with the crankshaft in OETTING to supply rotational power to the transmission.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over HOMUTH (2,715,842) in view of COLE (4,708,701).

Regarding Claim 15, HOMUTH teaches all the elements of claim 15 except "wherein the belt comprises a plurality of block pieces and a connecting body that connects the block pieces together in an endless manner."

COLE teaches a belt (31) with block pieces (49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the belt in HOMUTH with the blocks in COLE to create a belt with improved grip against the sheaves.

Allowable Subject Matter

Claims 3, 9, 13, 14, 15, 18, 19, 21, 22, and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY LIU whose telephone number is (571) 270-7018. The examiner can normally be reached on Mon-Thurs 7:30am - 5:00pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN Q. NGUYEN can be reached on (571) 272-6952. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Q. Nguyen/
Supervisory Patent Examiner, Art Unit 3654

/HENRY LIU/
Examiner, Art Unit 3654